

REMARKS

Applicant thanks the Examiner for withdrawing the finality of the previous Office Action. In the present Office Action, claims 1-5 and 7-10 are rejected under 35 U.S.C. 103(a) as unpatentable over US Patent Application Publication No. 2003/0019216 by Itakura et al. ("Itakura") in view of U.S. Patent No. 4,253,515 to Swiatosz (Swiatosz). Claims 11-16, 18, 20-29, 32-35, 37 and 39 are rejected under 35 U.S.C. 103(a) as unpatentable over Itakura. Claims 17 and 36 are rejected under 35 U.S.C. 103(a) as unpatentable over Itakura in view of U.S. Patent No. 5,332,031 to Kiga ("Kiga"). Claims 19, 30, 31, 40 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Itakura in view of Swiatosz. Claims 6 and 38 are objected to as being dependent on a rejected claim but are identified as including allowable subject matter. In this Amendment, claim 38 is canceled and claims 11, 21, 31-32 and 39-41 are amended.

Allowable Matter and Claim Objections

Applicant thanks the Examiner for acknowledging the allowable subject matter of claims 6 and 38. Accordingly, Applicant has amended independent claim 32 to include the subject matter of claim 38 (which had depended only from claim 32). Applicant respectfully submits that claim 32 and all its dependent claims are now allowable. Furthermore, Applicant has included the limitations recited in claim 6 into claim 21 and submits that claim 21 is also allowable, together with its dependent claims.

The §103 Rejections

The rejections of claim 1 should be withdrawn because the cited art, even if combined as suggested, does not render claim 1 of the present invention obvious. A §103(a), or obviousness, rejection is proper only when "the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains." 35 U.S.C. §103(a). The Examiner must make out a *prima facie* case for obviousness. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 U.S.P.Q.2d 1430 (Fed. Cir. 1990). Likewise, if the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 U.S.P.Q. 1125 (Fed. Cir. 1984).

The cited art cannot be combined in a manner that renders obvious the claimed inventions, or suggest the desirability of the combination, and modification as suggested in the Office Action would render the prior art invention unsatisfactory for its intended purpose.

In rejecting claim 1, a flat metallic mounting surface 50 in Itakura is cited as allegedly teaching or suggesting the thermal barrier required in claim 1. Claim 1 requires mounting a transfer plate to a thermal barrier. However, Itakura explicitly teaches “a metallic (material: copper-tungsten system) package 5...[having] a flat mounting surface 50 to mount the thermoelectric module 2.” Itakura paragraph [0040] and FIG 6(A). The flat mounting surface 50 is necessarily metal because a “first board 22 of the thermoelectric module 2 and the mounting surface 50 of the package 5 are joined with a first solder layer 71.” Itakura paragraph [0042]. Thus, Itakura expressly teaches away from a transfer plate that is coupled to a thermal barrier because both the surface 50 and the first board 22 (proposed by the Examiner as a transfer plate) must be metallic to be bonded by solder as taught in Itakura. Because each of mounting surface 50, first board 22 and solder layer 71 are metallic – and consequently heat conducting – nothing in this soldered structure can be construed as a thermal barrier. Therefore, even under the interpretation provided in the Office Action, the cited art does not render obvious mounting a transfer plate to a thermal barrier.

Furthermore, the thermal barrier in claim 1 is required to define a cavity thermally isolated from a transfer plate. As described in the Specification of the present Application, mounting a transfer plate to a thermal barrier can prevent heat generated by operation of a thermoelectric cooling device from being re-circulated back to a cavity defined by the thermal barrier. *See, e.g.*, Specification at page 7, lines 22-26. Itakura neither teaches such combination of elements nor suggests the desirability of preventing recirculation of heat. Indeed, Itakura is entirely silent on preventing heat recirculation and does not even teach or suggest defining a cavity using a thermal barrier. Therefore, the prior art does not suggest the desirability of the combination recited in claim 1.

Significantly, the introduction of a thermal barrier between Itakura’s first board 22 and mounting surface would render the modified Itakura structure unsatisfactory for its intended purpose. Itakura is directed to a method for making thermoelectric modules. *See* Itakura, paragraph [0012]. Itakura teaches thermoelectric modules that are constructed by applying a heater 90 to a metallic package that causes solder 71 to melt between mounting surface 50 and first board 22 in order to join the mounting surface 50 and the first board 22. Itakura, paragraph [0042]. If mounting surface 50 was in the form of a thermal barrier as

suggested in the Office Action, then Itakura's method of manufacture could not achieve its desired result because heat from heater 90 would be blocked from melting solder 71. Therefore, the modification of Itakura proposed in the Office Action would render Itakura's invention unsatisfactory for its intended purpose and no suggestion or motivation could have existed to make the proposed modification.

Neither Swiatosz nor Kiga cures these deficiencies of Itakura because neither reference teaches a cavity defined by a thermal barrier and thermally isolated from a transfer plate. None of the cited art provides any suggestion of the desirability of preventing heat recirculation using a thermal barrier as required in claim 1.

For at least these reasons, the rejection of claim 1 is improper and should be withdrawn.

Independent claim 11 requires a transfer plate mounted to a thermal barrier. As discussed above, the cited art does not teach such interposed thermal barrier. Therefore, and for at least the reasons provided above, the rejections of independent claim 11 should also be withdrawn.

Independent claim 11 includes a further limitation that explicitly requires that heat transfer between thermoelectric cooling device and housing be prevented by the mounting of a transfer plate to a thermal barrier. The cited art provides no such teaching or suggestion and offers no motivation for modifying prior art inventions to obtain prevention of heat transfer. Therefore, for at least this additional reason, the rejection of independent claim 11 should also be withdrawn.

Each of claims 2-10, 12-20, 22-31, 33-37 and 39-41 ultimately depend from an allowable independent claim and these dependent claims are allowable for at least the reasons their respective independent claim is allowable. Therefore the rejections of claims 2-10, 12-20, 22-31, 33-37 and 39-41 should be withdrawn.

Claim Amendments

Claims 11, 21, 31-32 and 39-41 are amended as discussed above, and for the purposes of better setting forth certain aspects of the invention and correcting certain typographical errors. The amendments introduce no new matter and are fully supported in the Specification.

CONCLUSION

All objections and rejections having been addressed, and in view of the foregoing, the claims are believed to be in form for allowance, and such action is hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, he is kindly requested to contact the undersigned at the telephone number listed below.

Please charge any fees associated with the submission of this paper to Deposit Account Number 033975. The Commissioner for Patents is also authorized to credit any over payments to the above-referenced Deposit Account.

Respectfully submitted,

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